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SABIC Innovative Plastics™

MATERIAL SAFETY DATA SHEET

Print date: 25-Jul-2008 *Revision Number: 1* *Revision date: 25-Jul-2008*

1. IDENTIFICATION OF THE SUBSTANCE AND COMPANY

Trade Name:	NORYL*
Product ID:	SPN422L -WH4018
Product Description:	Polyphenylene ether [CASRN 25134-01-4]/High impact polystyrene [CASRN 9003-55-8] and/or polystyrene [CASRN 9003-53-6] blend
Product Type:	Commercial Product
Recommended use:	May be used to produce molded or extruded articles or as a component of other industrial products.
Company:	SABIC Innovative Plastics One Plastics Avenue Pittsfield, MA 01201 USA (413) 448-5800 www.sabic-ip.com
Emergency Telephone Number:	800/447-4545
Emergency Transportation/CHEMTREC (24 HOUR):	800/424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS:

Chemical Name	CAS Number	Weight %
Titanium dioxide	13463-67-7	5 - 10

If present, components listed above are physical or health hazards as defined in the Hazard Communication Standard. The quantities represent typical or average values for the materials shown. Additional compositional data are provided in Section 15, REGULATORY INFORMATION, subject to supplier notification requirements.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

- Pellets with slight or no odor.
- Spilled material may create slipping hazard.
- Can burn in a fire creating dense toxic smoke.
- Molten plastic can cause severe thermal burns.
- Fumes produced during melt processing may cause eye, skin, and respiratory tract irritation. Severe over-exposure may result in nausea, headache, chills, and fever.
- Secondary operations, such as grinding, sanding, or sawing can produce dust which may present an explosion or respiratory hazard.

HMIS Rating **Health:** 0 **Flammability:** 1 **Reactivity:** 0

Skin Contact:	Pellets not likely to cause skin irritation.
Eye Contact:	Resin particles, like other inert materials, are mechanically irritating to eyes.
Inhalation:	Pellet inhalation unlikely due to physical form. Processing fumes from PPE resin are not considered toxic. In acute inhalation tests, laboratory rats were exposed to processing fumes at concentrations exaggerating those that would likely occur in workplace situations. During the exposure periods (6 hour duration) signs of eye and nasal irritation were observed. These signs of irritation disappeared shortly after the animals were removed from the exposure chamber. No deaths or signs of toxicity were noted during the fume exposure period. There were no distinct or consistent treatment related tissue or organ changes noted in gross necropsies.
Ingestion:	Pellet ingestion unlikely due to physical form.
Sensitization:	No information available
Other Information:	OSHA, IARC and/or NTP have listed carbon, titanium dioxide, crystalline silica (quartz), respirable glass and certain heavy metals, present in some colorants and fillers, as carcinogens. If these materials are present in this product at significant quantities, they are shown in Section 2. These materials are essentially bound to the plastic matrix and are unlikely to contribute to workplace exposure under recommended processing conditions.

Chronic Information

Chronic Toxicity:	No information available
Resin Issues:	Processing fumes may cause irritation to the eyes, skin, and respiratory tract. In cases of severe exposure, nausea and headache can also occur. Grease-like processing fume condensates on ventilation ductwork, molds, and other surfaces can cause irritation and injury to skin.
Aggravated Medical Conditions:	MEDICAL RESTRICTIONS: There are no known health effects aggravated by exposure to this product. However, certain sensitive individuals and individuals with respiratory impairments may be affected by exposure to components in the processing vapors

4. FIRST AID MEASURES

Inhalation: Move to fresh air in case of accidental inhalation of fumes from overheating or combustion. If symptoms persist, call a physician.

Skin Contact: Cool skin rapidly with cold water after contact with hot polymer. Wash off immediately with soap and plenty of water. Consult a physician.

Eye Contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. If eye irritation persists, consult a specialist.

Ingestion: No hazards which require special first aid measures.

Precautions: Processing fumes inhalation may be irritating to the respiratory tract. If symptoms are experienced remove victim from the source of contamination or move victim to fresh air and obtain medical advice.

5. FIRE-FIGHTING MEASURES

Autoignition Temperature: 490 °C (914°F), estimated

Explosive Limits

upper: Not determined
lower: Not determined

Suitable Extinguishing Media: Water spray mist or foam.

Extinguishing media which must not be used for safety reasons: Carbon dioxide and dry chemical are not recommended because their lack of cooling capacity may permit re-ignition

Hazards from Combustion Products: Fire will produce dense black smoke containing hazardous combustion products, carbon oxides, hydrocarbon fragments.

Special Protective Equipment for Firefighters: Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products.

Specific Hazards: Take precautionary measures against static discharges. During processing, dust may form explosive mixture in air. Thermal decomposition can lead to release of irritating gases and vapors.

6. ACCIDENTAL RELEASE MEASURES

Clean up: Sweep up and shovel into suitable containers for disposal. Do not create a powder cloud by using a brush or compressed air.

Personal Precautions: See section 8.

Environmental Precautions: Do not flush into surface water or sanitary sewer system. Should not be released into the environment.

7. HANDLING AND STORAGE

Handling: Handle in accordance with good industrial hygiene and safety practice. Provide for appropriate exhaust ventilation and dust collection at machinery. Avoid dust formation. All metal parts of the mixing and processing equipment must be earthed.

Storage: Keep tightly closed in a dry and cool place. Keep away from heat and sources of ignition.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No components with information, unless noted below

Chemical Name	OSHA	ACGIH	Canada - Alberta - 8 Hr Exposure Limits	Mexico OEL Data	SABIC-IP Recommended Exposure Limits*
Titanium dioxide 13463-67-7	10 mg/m^3 Total dust.	10 mg/m^3	10 mg/m^3	10 mg/m^3 Ti	No Information

**SABIC Innovative Plastics Recommended Exposure Limits have been established for certain chemicals.*

Engineering Measures to Reduce Exposure: Handle in accordance with good industrial hygiene and safety practice. Provide for appropriate exhaust ventilation at machinery. Processing fume condensate may be a fire hazard and toxic; remove periodically from exhaust hoods, ductwork, and other surfaces using appropriate personal protection.

Hand Protection: Protective gloves

Eye Protection: Safety glasses with side-shields or chemical goggles. In addition, use full-face shield when cleaning processing fume condensates from hood, ducts, and other surfaces.

Respiratory Protection: When using this product at elevated temperatures, implement engineering systems, administrative controls or a respiratory protection program (including a respirator approved for protection from organic vapors, acid gases and particulate matter) if processing fumes are not adequately controlled or operators experience symptoms of overexposure. If dust of powder are produced from secondary operations such as sawing or grinding, use a respirator approved for protection from dust.

Skin and Body Protection: Long sleeved clothing

Hygiene Measures: When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance:	Pellets
Color:	Various
Odor:	None or slight
Melting point/range:	This product does not exhibit a sharp melting point but softens gradually over a wide range of temperatures.
Autoignition Temperature:	490 °C (914°F) estimated
Vapor Pressure:	Negligible
Water Solubility:	Insoluble
Evaporation Rate:	Negligible
Specific gravity:	> 1; (water =1)
VOC content(%):	Negligible
Explosive Limits	
upper:	Not determined
lower:	Not determined

10. STABILITY AND REACTIVITY

Stability:

Stable at normal conditions. Hazardous polymerization does not occur.

Conditions to Avoid:

Avoid temperatures above 490°C. To avoid thermal decomposition, do not overheat. Heating can release hazardous gases. Do not exceed melt temperature recommendations in product literature. In order to avoid autoignition/hazardous decomposition of hot thick masses of plastic, purgings should be collected in small, flat, shapes or thin strands to allow for rapid cooling. Quench in water. Do not allow product to remain in barrel at elevated temperatures for extended periods of time: purge with a general purpose resin.

Hazardous Decomposition Products:

Processing fumes evolved at recommended processing conditions may include trace levels of hydrocarbon fragments, alkylphenols, aldehydes, alcohols, aliphatic amines, dimethylcyclohexanone, trimethylanisole, dihydrobenzofuran.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:

LD50/oral/rat:	>15 g/kg estimated
LD50/dermal/rabbit:	>2 g/kg estimated
Inhalation:	Pellet inhalation unlikely due to physical form. Processing fumes from PPE resin are not considered toxic. In acute inhalation tests, laboratory rats were exposed to processing fumes at concentrations exaggerating those that would likely occur in workplace situations. During the exposure periods (6 hour duration) signs of eye and nasal irritation were observed. These signs of irritation disappeared shortly after the animals were removed from the exposure chamber. No deaths or signs of toxicity were noted during the fume exposure period. There were no distinct or consistent treatment related tissue or organ changes noted in gross necropsies.
Eye Contact:	Resin particles, like other inert materials, are mechanically irritating to eyes.
Skin Contact:	Pellets not likely to cause skin irritation.
Ingestion:	Pellet ingestion unlikely due to physical form.
Chronic Toxicity:	No information available
Subchronic Toxicity:	In a 13 week dust inhalation study, laboratory rats were exposed to up to 50 mg/m^3 PPE dust for 6 hrs/day for 13 weeks with a 13-week non-exposure recovery period. There was no evidence of systemic toxicity at the highest dose. Localized toxicity was observed in the lungs and regional lymph nodes of the 50 mg/m^3 exposure group. These findings decreased in severity in the 7 and 1 mg/m^3 exposure groups. A no adverse effect level for PPE is estimated to be 7 mg/m^3 and a no observable effect level is 1 mg/m^3
Primary Irritation:	Substance does not generally irritate and is only mildly irritating to the skin.
IARC: **OSHA:** **NTP:**	Not Listed Not regulated Not tested
Remarks:	The toxicological data has been taken from products of similar composition.
Special Studies:	Polyphenylene ether: In two independent 2 year dietary studies, purebred beagles and laboratory rats were fed polyphenylene ether resin powder (up to 10% by weight in the animal diet). In both studies, there were no adverse effects on physical appearance, behavior, growth, food consumption, survival, clinical laboratory results, organ weights or gross or microscopic pathology. In a 6 month chronic inhalation study, rats and guinea pigs exposed 6 hrs/day to up to 300 mg/m^3 PPE dust developed no physical, nutritional, hematologic, clinical or pathological reaction except to lung tissue changes which consisted of macrophage accumulation, many of which were degenerative in the pulmonary alveoli. Polyphenylene ether is not a mutagen by Ames (Salmonella) Assay with and without activation. Titanium Dioxide: The International Agency for Research on Cancer (IARC) has determined titanium dioxide to be a possible human carcinogen (class 2B) based on evidence in experimental animals. Rats exposed to high doses of titanium dioxide by inhalation or intratracheal installation showed an increased incidence of lung tumors.

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12. ECOLOGICAL INFORMATION

Ecotoxicity Effects: Do not flush into surface water or sanitary sewer system.

Other information: Ecological damages are not known or expected under normal use.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Recycling is encouraged. Landfill or incinerate in accordance with federal, state and local requirements. Collected processing fume condensates and incinerator ash should be tested to determine waste classification.

US EPA Waste number: None

14. TRANSPORT INFORMATION

Transport Classification: Not regulated as hazardous for shipment, unless noted below, under current transportation guidelines.

DOT

ADR/RID/ADNR

IMDG

ICAO

IATA-DGR

MEXICO

15. REGULATORY INFORMATION

International Inventories:

TSCA (USA):	Listed
DSL/NDSL (Canada):	Listed
EINECS/ELINCS (Europe):	Listed
ENCS (Japan):	Listed
IECA (China):	Listed
KECL (Korea):	Listed
PICCS (Philippines):	Listed
AICS (Australia):	Listed

Other Inventory Information:
A "Listed" entry above means all chemical components are on the respective inventory list and/or a qualifying exemption exists for one or more components. A "Not listed" entry above indicates one or more components is restricted from import or manufacture into that country/region.

SARA 313:
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372.

SARA (311, 312) hazard class:

Acute Health Hazard	N
Chronic Health Hazard	N
Fire Hazard	N
Sudden Release of Pressure Hazard	N
Reactive Hazard	N

Canada:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS hazard class:
Non-controlled

California Proposition 65:
Components in this product known to the State of California to cause cancer and/or reproductive effects, are listed below:

Chemical Name	Weight %	California Proposition 65:
Toluene 108-88-3	0.01 - 0.10	Listed: January 1, 1991 Developmental toxin.
Nickel antimony titanium oxide yellow 8007-18-9	<100 ppm	Listed: May 7, 2004 Carcinogenic. (as nickel compounds)

RoHS EU Directive 2002/95/EC:
This product complies with RoHS - it does not intentionally contain banned chemicals.

16. OTHER INFORMATION

NORYL* is a registered trademark of SABIC Innovative Plastics

Prepared by: Product Stewardship & Toxicology

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End of Material Safety Data Sheet